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The NHLBI Workshop on Hypertension in Hispanic Americans, Native Americans, and Asian/Pacific Islander Americans

SYNOPSIS

IN JUNE 1994, the National Heart, Lung, and Blood Institute held a workshop entitled "Epidemiology of Hypertension in Hispanic Americans, Native Americans, and Asian/Pacific Islander Americans." The studies that served as the basis for the workshop along with a summary of two workshop panel discussions are being published as a supplement by *Public Health Reports*.

In this article, the authors present graphs that compare results across these studies with data for non-Hispanic whites, blacks, and Hispanics from the Third National Health and Nutrition Examination Survey. The graphs indicate differences in mean blood pressure levels within and among these three population groups; such differences are also apparent in comparisons of these groups with the U.S. white and black populations. Although they appear modest, these differences are sufficient to result in increased mortality rates in populations with higher levels of hypertension. Environmental influences appear to underlie most of these differences.

In all of these populations, blood pressure control rates are poor. Based on these studies, hypertension prevention and control programs should be undertaken. Special emphasis should be placed on the underserved minority populations that were the focus of the workshop.

Data about hypertension among most minority populations in the United States are sparse. In June 1994, the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health held an intensive two-day workshop in Washington DC entitled "Epidemiology of Hypertension in Hispanic Americans, Native Americans, and Asian/Pacific Islander Americans" to help fill this void. Leading U.S. and international experts shared data and perspectives in a series of 25 presentations and two panel discussions, concluding with recommendations for future research, control, and prevention efforts.

Studies and panel discussions from the workshop are being published as a supplement by *Public Health Reports*. This article seeks to provide a public health perspective and to draw appropriate conclusions from the large amount of data presented in these studies. It includes graphs not shown in the supplement that permit comparison of data from the different studies with each other

Figure 1. Mean systolic blood pressure of Hispanic Americans ages 18 and older

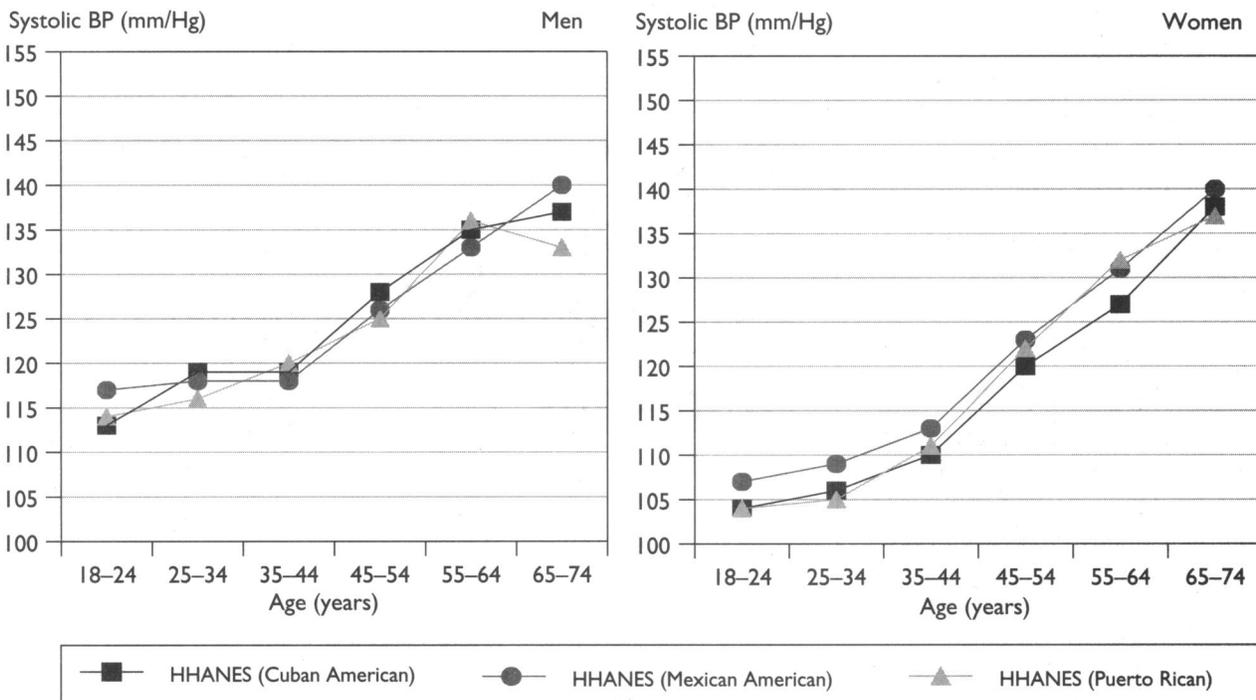
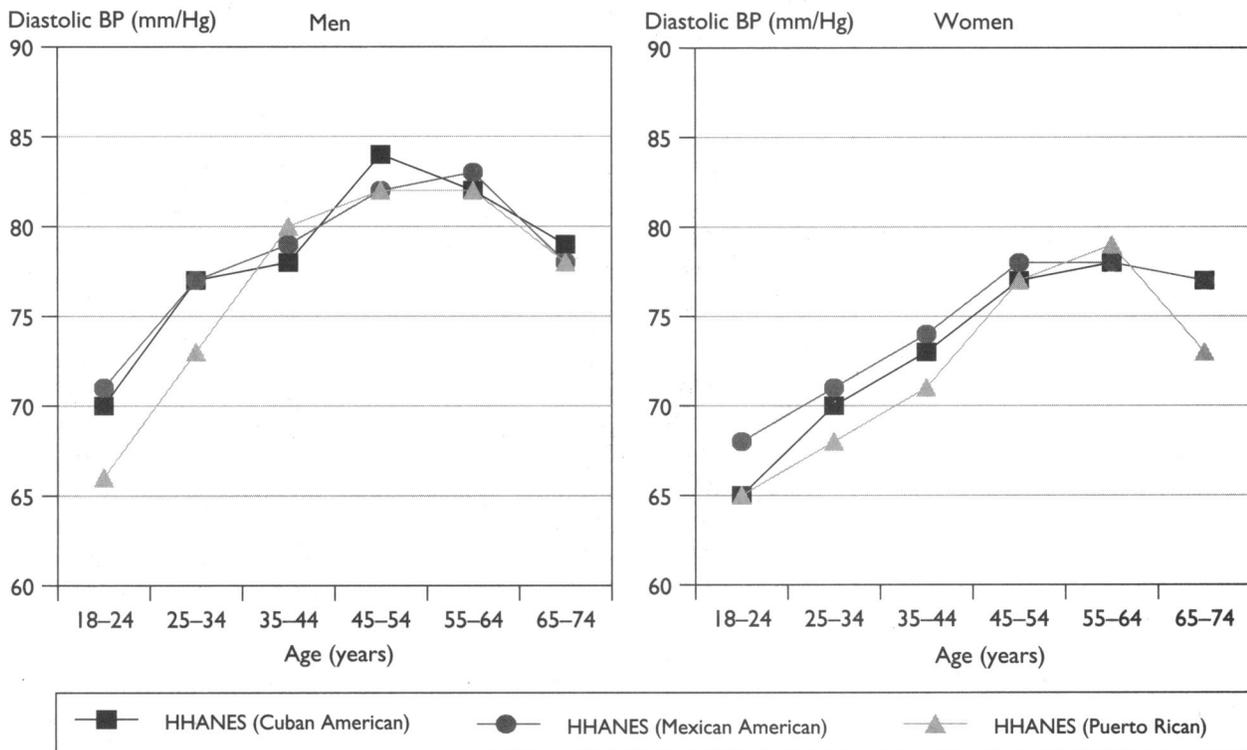


Figure 2. Mean diastolic blood pressure of Hispanic Americans ages 18 and older



and with data from large probability samples of non-Hispanic whites, blacks, and Hispanics in the third National Health and Nutrition Examination Survey (NHANES III) and the Hispanic Health and Nutrition Examination Survey (HHANES). It concludes with key recommendations that emerged from the workshop and additional analyses.

Hypertension in Hispanic Populations

Ten of the studies presented in the workshop assessed hypertension in Hispanic American populations. These studies showed differing prevalence rates of hypertension among Hispanics. (Data not shown.) In Figures 1 and 2, the mean systolic and diastolic blood pressures of Mexican Americans, Puerto Ricans, and Cuban Americans ages 18 and older sampled in HHANES are plotted. A progressive rise in systolic blood pressure with age is seen for all of these groups. No systematic differences are evident among the subgroups.

Figures 3 and 4 show mean systolic and diastolic blood pressures of Hispanic Americans ages 45 to 64 in samples from HHANES compared with the corresponding data for Mexican Americans, blacks, and whites from NHANES III (a probability sample of the U.S. population). In these and subsequent bar graphs, 95% confidence intervals are shown. In the NHANES III data for men and women, the mean systolic and diastolic blood pressures of blacks were highest, followed by Mexican Americans, and then by whites. In HHANES, Cuban American women had the lowest mean systolic blood pressure. Otherwise, mean systolic blood pressure did not differ among the Hispanic subgroups. The mean diastolic blood pressure was comparable in the three HHANES subgroups.

Hypertension in American Indians

Six studies of American Indians or

Figure 3. Means with 95% confidence intervals of systolic blood pressures of Hispanic American men and women ages 45–64 (Age Adjusted to 1990 U.S. Resident Population)

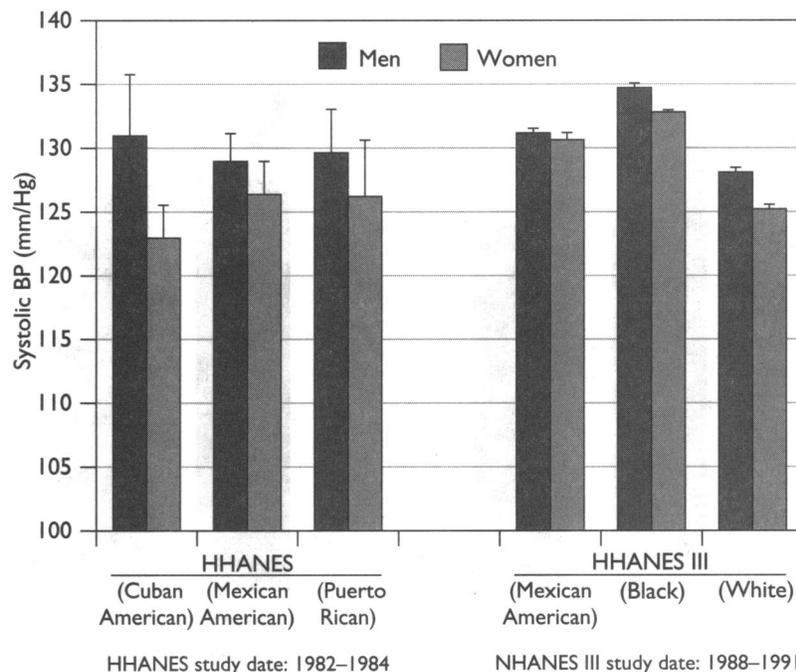


Figure 4. Means with 95% confidence intervals of diastolic blood pressures of Hispanic American men and women ages 45–64 (Age Adjusted to 1990 U.S. Resident Population)

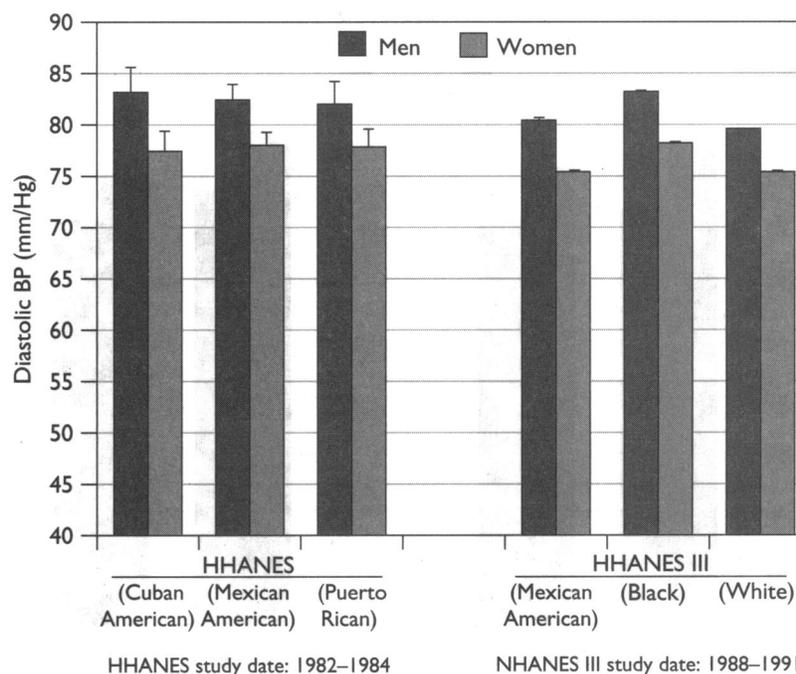
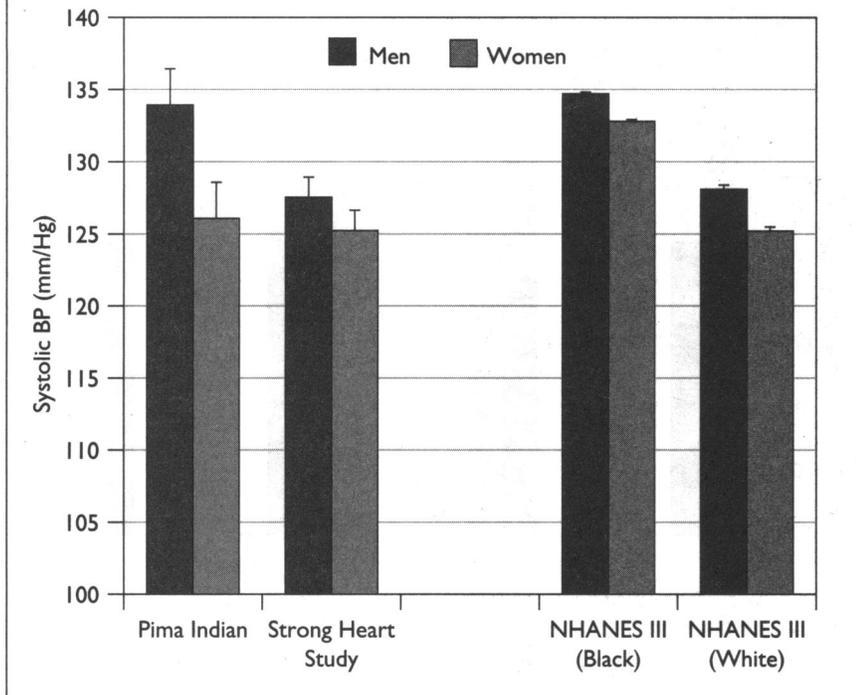


Figure 5. Means with 95% confidence intervals of systolic blood pressures of American Indian men and women ages 45–64
(Age Adjusted to 1990 U.S. Resident Population)



Alaska Natives or both were presented at the workshop. These studies showed varying prevalence and incidence rates of hypertension among the different American Indian populations in studies of volunteers in various parts of the United States. A progressive rise of systolic blood pressure with age was seen for these populations, comparable to that for Hispanics (data not shown).

Figures 5 and 6 show mean systolic and diastolic blood pressures of American Indian men and women ages 45 to 64 from volunteers in various parts of the United States along with corresponding data for blacks and non-Hispanic whites from NHANES III. The mean systolic blood pressure of Pima Indian men is comparable to that of NHANES III blacks, although their mean diastolic reading is slightly lower. Pima Indian women and Strong Heart Study men and women have mean systolic and diastolic blood pressures comparable to whites in NHANES III.

Hypertension in Asian and Pacific Islanders

Seven studies of hypertension in Asian/Pacific Islander American populations were presented at the workshop. These studies found considerable variation in the prevalence of hypertension among the Asian/Pacific Islander populations. (Data not shown.) In six of these studies of volunteer Japanese Americans in various parts of the United States and of Japanese in Hiroshima, Japan, a progressive rise in systolic blood pressure with age was again noted (data not shown).

In Figures 7 and 8, mean systolic and diastolic pressures of Asian/Pacific Islander men and women of Japanese, Chinese, Filipino, and “other Asian” origin from the Kaiser Permanente Study¹ are plotted by age. The progressive rise with age can again be seen. Filipino men and women appear to have systematically higher mean systolic and diastolic readings than the other groups.

In Figures 9 and 10, mean systolic and diastolic blood pressures of Asian/Pacific Islander men and women ages

Figure 6. Means with 95% confidence intervals of diastolic blood pressures of American Indian men and women ages 45–64
(Age Adjusted to 1990 U.S. Resident Population)

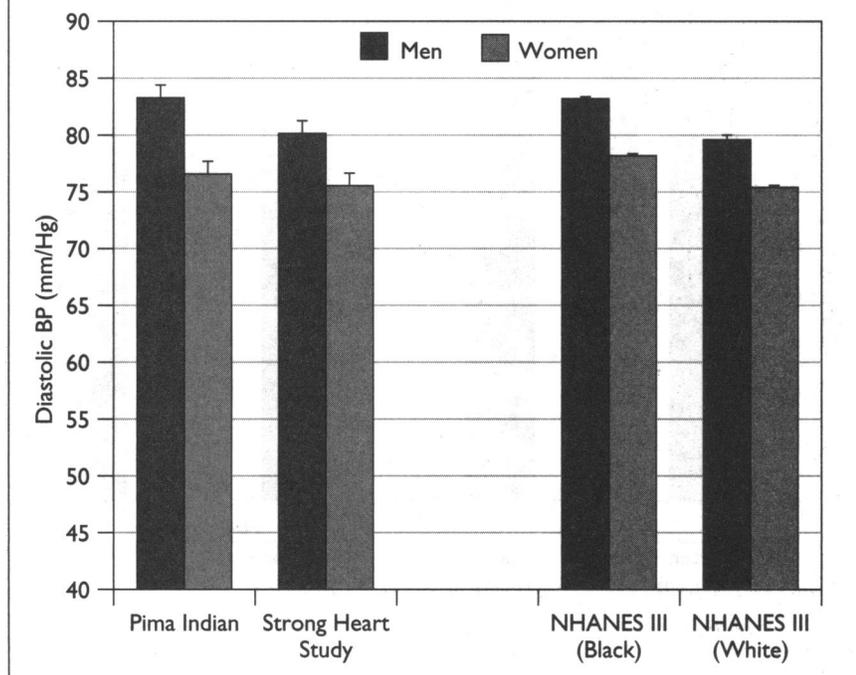


Figure 7. Mean systolic blood pressure of Asian and Pacific Islander Americans ages 18 and older

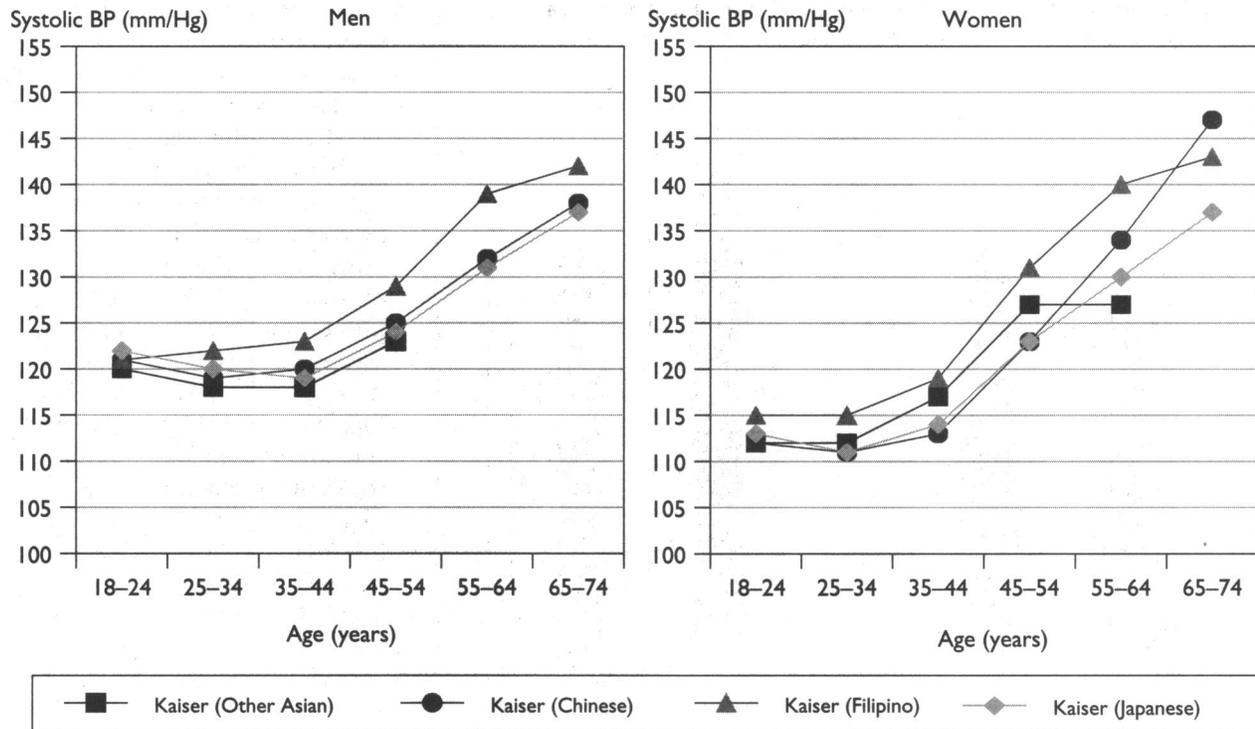


Figure 8. Mean diastolic blood pressure of Asian and Pacific Islander Americans ages 18 and older

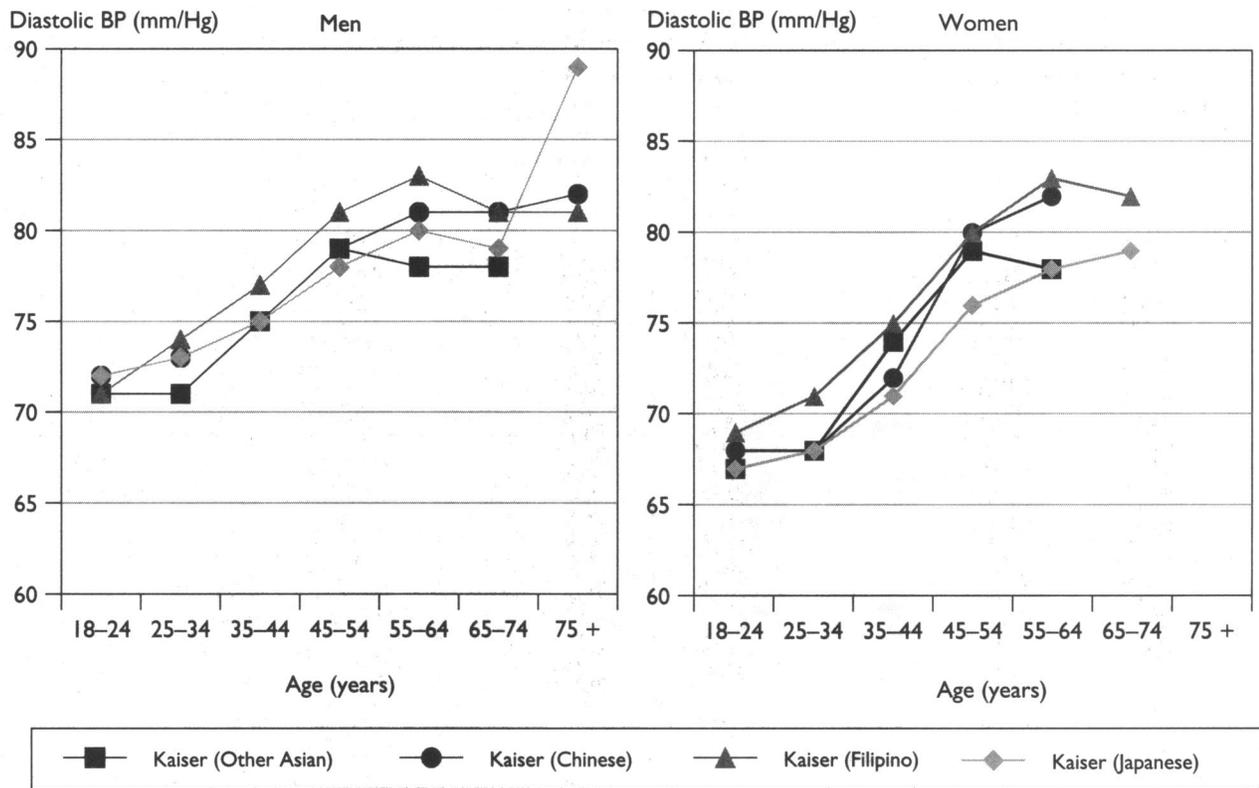


Figure 9. Means with 95% confidence intervals of systolic blood pressures of Asian and Pacific Islander Americans ages 45–64 (Age Adjusted to 1990 U.S. Resident Population)

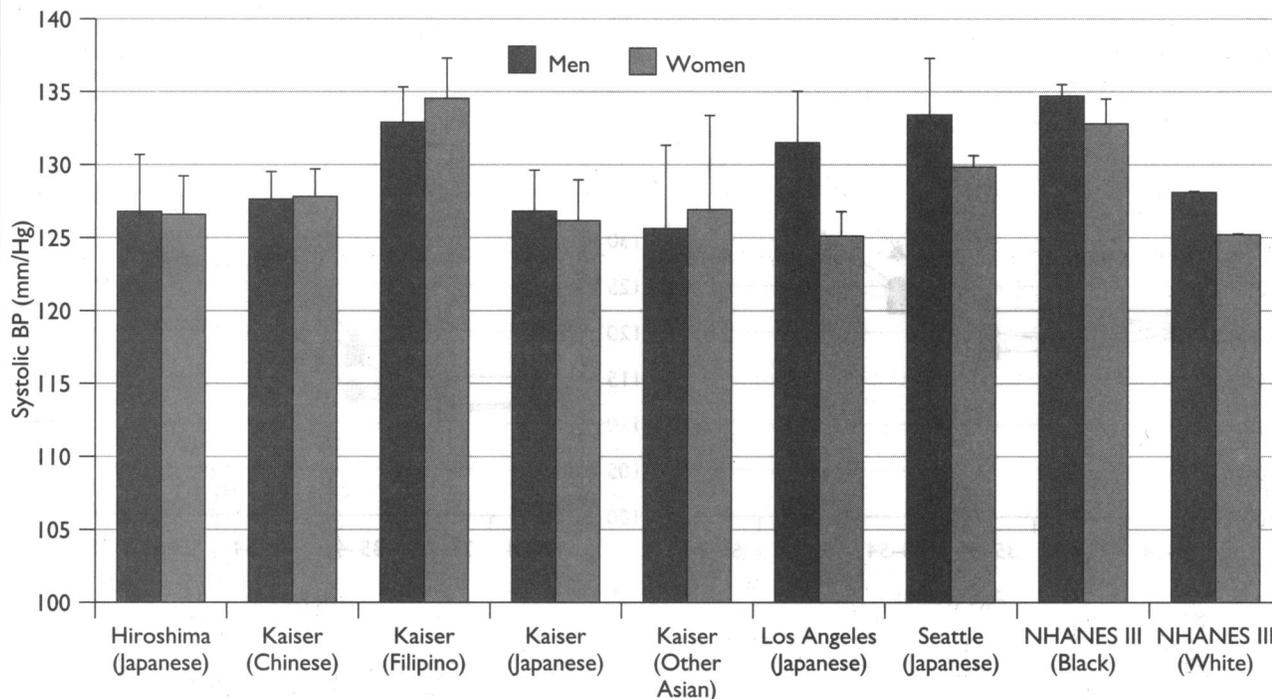
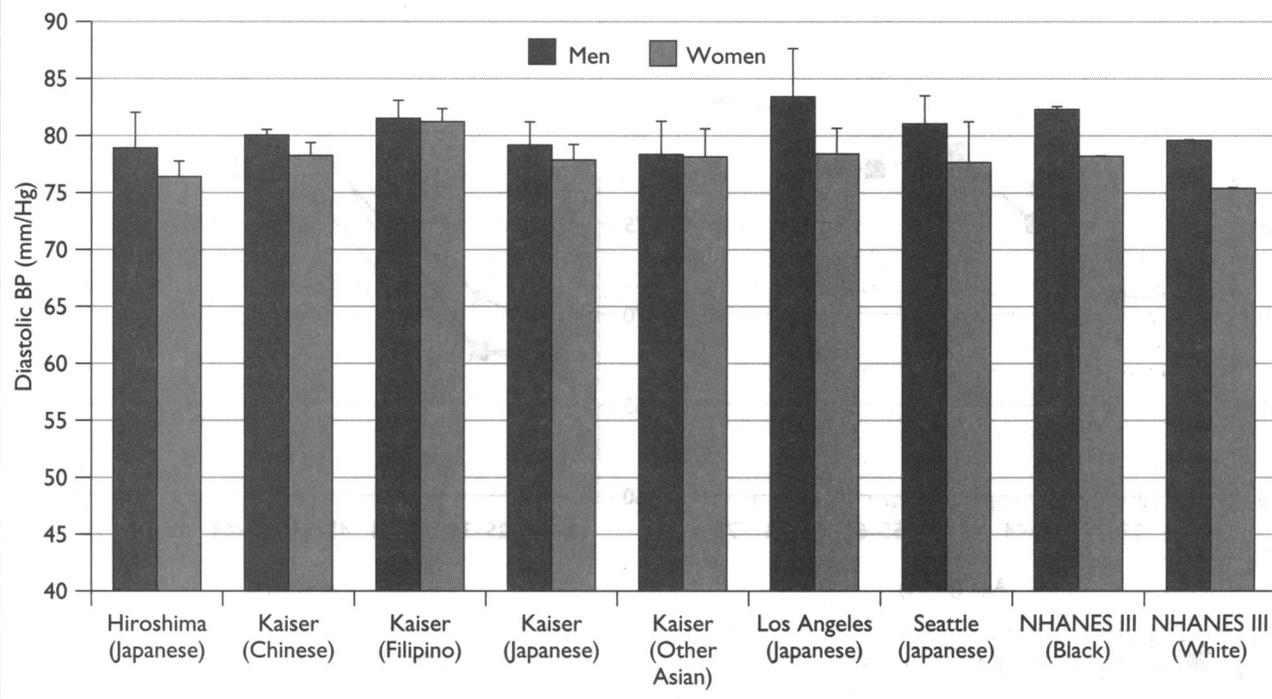


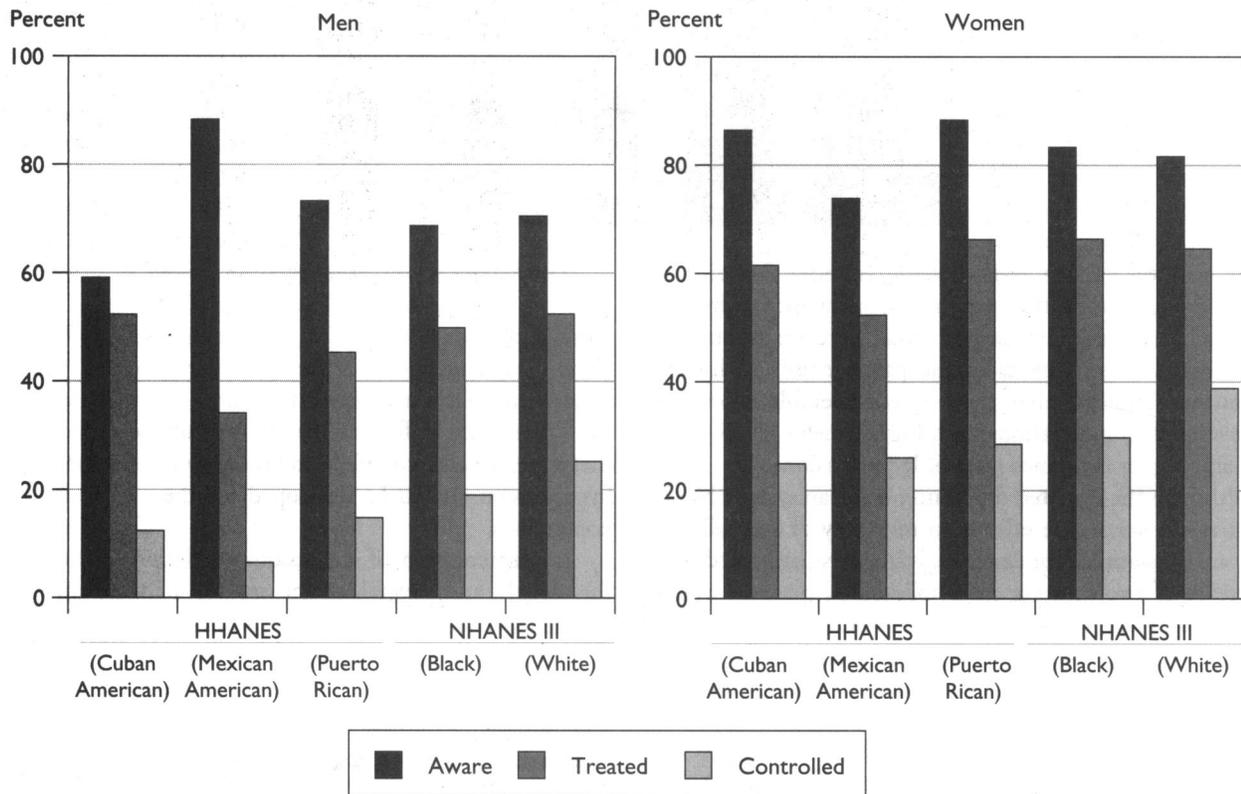
Figure 10. Means with 95% confidence intervals of diastolic blood pressures of Asian and Pacific Islander Americans ages 45–64 (Age Adjusted to 1990 U.S. Resident Population)



45 to 64 from volunteer Japanese/Japanese American populations in Hawaii, Los Angeles, Seattle, and Hiroshima, Japan, are shown in comparison with the corresponding data for blacks and whites from NHANES III. In men, the mean systolic and, to a large extent, the diastolic blood pressures of Filipino Americans, Seattle Japanese Americans, and Los Angeles Japanese Americans are elevated nearly as much as in NHANES III blacks. In the other

populations, the mean systolic blood pressure of men is close to that of NHANES III whites. Among men, the mean diastolic blood pressure of Japanese Americans in Los Angeles is highest, followed by blacks in NHANES III, followed by Filipino Americans. Among women, the mean diastolic blood pressure of Filipino Americans is highest; the blood pressure of women from the other groups is comparable to blacks in NHANES III.

Figure 11. Awareness, treatment, and control of hypertension in Hispanic Americans ages 45-64
(Age Adjusted to 1990 U.S. Resident Population)



Definitions

Hypertension: Systolic blood pressure 140 mm/Hg or greater or diastolic blood pressure 90 mm/Hg or greater, or on an antihypertensive medication.

Aware: Hypertensives told by physician.

Treated: Hypertensives currently taking antihypertensive medication.

Controlled: Hypertensives currently taking antihypertensive medication and systolic blood pressure less than 140 mm/hg and diastolic blood pressure less than 90 mm/Hg.

Source: JNC V, January 1993

HHANES study date: 1982-1984
NHANES III study date: 1988-1994

Conclusions and Recommendations

Three points and three recommendations help to synthesize the data from the workshop papers and the data shown in this article. First, there are remarkable similarities among the different populations. In virtually all of the populations, there is an impressive increase in the prevalence of hypertension as the population ages. The prevalence rates of optimal blood pressure (less than 120 over 80 millimeters of mercury [mm Hg]) are very low (less than 25%) in most of these populations, particularly in those ages 50 and older.

Yet, within the major groups studied, there is considerable variability in mean blood pressure levels and the prevalence of hypertension. For example, looking at the Kaiser data on various Asian/Pacific Islander Americans, there are significant differences in the prevalence of hypertension. These differences suggest that there are substantial environmental components in the pathogenesis of hypertension and indicate that there is considerable room for improvement in populations with higher mean blood pressures and higher incidence rates of hypertension.

Although the reported differences in mean systolic blood pressures are small, the effects on mortality of such differences are substantial. For example, it has been estimated that a decrease of two mm Hg in systolic blood pressure would cause reductions in mortality by 6% for stroke, 4% for coronary heart disease, and 3% for all causes combined.²

Although the levels of awareness of hypertension are quite high in all groups, it is striking that the rates of control are generally less than 25% (as shown in Figure 11, comparing Mexican Americans, blacks, and whites). To remedy the problem of poor control of hypertension, workshop participants recommended reinstating hypertension control programs, with special emphasis on underserved minority populations.

Second, a number of explanatory variables emerged across the different populations. Modifiable characteristics include excess sodium consumption, high body mass index, central obesity and intra-abdominal fat, and excess alcohol consumption.

The situation with respect to impaired glucose tolerance and non-insulin dependent diabetes is more complex; it is not yet clear that control of blood sugar per se will reduce

the prevalence of hypertension. Reduction of body fat, however, will result in an improvement in glucose tolerance and a reduction in blood pressure. Thus, there are many opportunities for undertaking preventive efforts, beginning in childhood and continuing throughout adult life.

To prevent hypertension, the NHLBI has strongly recommended that the U.S. population reduce its consumption

of sodium, maintain normal body weight, exercise regularly, and drink alcohol only in moderation.³ Workshop participants reinforced these recommendations, indicating that hypertension prevention programs should be instituted for the populations that were the subject of the workshop. Such programs could reduce the steep rise in blood pressure with age that is seen in these populations.

Third, data on all large minority groups in this country have not been systematically collected. Further, for many of these studies, data were lacking on diet, physical activity, and alcohol consumption. There are differences in the way researchers collect and report their data that make comparison among the different datasets difficult. We recommend that a larger, more complete and more consistent database on hypertension should be developed for these three minority populations.

Implementation of the recommendations presented in this article and several of the reports in the supplement could result in substantial improvements in the health of these underserved populations.⁴⁻⁶

In virtually all of the populations, there is an impressive increase in the prevalence of hypertension as the population ages.

References

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